UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/446,808	07/21/00	KUPPER J	4121-115

023448 HM12/1108
INTELLECTUAL PROPERTY / TECHNOLOGY LAW
PO BOX 14329
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EXAMINER	
SHUKLA,R	
ART UNIT	**PAPER NUMBER**
1632	16

DATE MAILED: 11/08/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/446,808	KUPPER ET AL.	
	Examiner	Art Unit	
	Ram Shukla	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-6 and 10-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-6 and 10-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *11* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Response/amendment filed 10-18-01 has been entered.

2. New claim 16 has been entered.

Election/Restrictions

Applicant's election with traverse of the invention of group II, claims 10, 3-6, and 11-15 in Paper No. 15 is acknowledged. The traversal is on the ground that the newly presented claim 16 is a linking claim. This is not found persuasive because Applicants have not discussed as to why the restriction set forth in the previous application was improper. Regarding claim 16, it is noted that although claim 16 recites the invention of both the groups of I and II. However, the inventions of groups I and II are distinct because, as discussed in the previous office action, the invention of group II requires a transgenic mammal (wherein the expression of poly (ADP ribose) polymerase is altered by inserting a gene encoding a dominant negative poly ADP ribose polymerase in the genome of the mammal) whereas the mammal used in the method of group I would transiently express the dominant negative poly (ADP ribose) polymerase and the steps of making the mammals would be distinct and unrelated. Therefore, the inventions of the two groups would be distinct. Accordingly, claim 16 would be examined to the extent it reads on a method of identifying carcinogenic agents, comprising administering one or more potential carcinogenic agents to a transgenic mammal that has a genome wherein the expression of poly (ADP ribose) polymerase is altered by an inserted gene encoding a dominant negative poly (ADP ribose) polymerase.

The requirement is still deemed proper and is therefore made FINAL.

3. Claim 2 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 15.

4. Claims 10, 5, and 16 are objected to because they recite a non-elected invention. Applicants are required to cancel or amend these claims to reflect elected subject matter.

5. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to "Microfiche Appendix" and the drawings, each of the lettered items should appear in upper case, without underlining or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) Title of the Invention.
(b) Cross-References to Related Applications.
(c) Statement Regarding Federally Sponsored Research or Development.
(d) Reference to a "Microfiche Appendix" (see 37 CFR 1.96).
(e) Background of the Invention.
    1. Field of the Invention.
    2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) Brief Summary of the Invention.
(g) Brief Description of the Several Views of the Drawing(s).
(h) Detailed Description of the Invention.
(i) Claim or Claims (commencing on a separate sheet).
(j) Abstract of the Disclosure (commencing on a separate sheet).
(k) Drawings.
(l) Sequence Listing (see 37 CFR 1.821-1.825).

Applicants are advised to arrange and label the specification as suggested.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 3-6 and 10-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is referred to the revised interim guidelines on written description published January 5, 2001 in the Federal Register, Volume 66, Number 5, page 1099-111 (also available at www.uspto.gov).

In analyzing whether the written description requirement is met for genus claims, it is first determined whether a representative number of species have been described by their complete structure. In the instant case the claimed invention encompasses transgenic mammals in which DNA repair is defective due to inhibition of poly (ADP ribose) polymerase and methods of screening of carcinogenic agents using the mammals. Since it is not realistic to expect that the "complete structure" of any transgenic animal, or even a cell, could be described, this requirement is interpreted to be whether phenotypic consequences of altering the genotype have been described. In this case, the specification provides example and methodology to make a transgenic mouse (see pages 4 and 5). However, considering the fact that the claimed invention encompasses transgenic animals as well as knockout animals whose phenotypes and characteristics may not be known because the art of making transgenic animals or knockout animals is highly unpredictable, an artisan would not know how to describe the transgenic mammals encompassed by the claimed invention.

Next, it is determined whether a representative number of species have been sufficiently described by other relevant identifying characteristics. It is not possible to adequately describe the claimed products because the effects of inactivating a gene can not be predicted, particularly when a gene product may be interacting with the proteins of a family of proteins. For example, Korach et al (US Patent No. 5,650550) produced a knockout mouse lacking a functional estrogen receptor. One skilled in the art would not have predicted that such an animal would even be viable (see col 9, lines 22-39), much less have been able to predict the resulting

phenotype. In the instant application, what would have been the result of the ablation of PARP gene, in the transgenic mammals encompassed by the invention is not known. Furthermore, the specification does not disclose what would be the characteristics that would differentiate one transgenic mammal from the other. With the limited information disclosed in the specification, an artisan would have not been able to predict whether all these animals would have had same or different phenotypes compared to the transgenic mouse disclosed in the specification.

Therefore, the limited disclosure in the specification is not deemed sufficient to reasonably convey to one skilled in the art that Applicants were in possession of the huge genera recited in the claims at the time the application was filed. Thus it is concluded that the written description requirement is not satisfied for the claimed genera.

8. Claims 3-6 and 10-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for: (i) a transgenic mouse, wherein a DNA construct comprising the human cytokeratin-14 promoter operably linked to the coding sequence of the DNA binding domain of human poly (ADP ribose) polymerase (EC.2.4.2.30) and polyadenylation signal of the human cytokeratin-14 gene is integrated into the genome of the transgenic mouse and wherein said DNA construct is the DNA construct of figure 1 and wherein said DNA construct expresses a dominant negative poly(ADP ribose) polymerase in the cells of the basal layer of the skin of the transgenic mouse and wherein in said cells of the basal layer of the skin, the poly(ADP ribose) polymerase is inhibited by the dominant negative poly(ADP ribose) polymerase expressed by the DNA construct and (ii) a method of identifying carcinogenic agents, comprising topically administering one or more potential carcinogenic agents to the transgenic mouse, wherein, when said topical administering of said one or more potential carcinogenic agents to said transgenic mouse, compared to the transgenic mouse not administered the one or more potential carcinogenic agents, results in the development of skin tumors, said one or more potential carcinogenic agent is

considered a carcinogenic agent, does not reasonably provide enablement for any and all transgenic mammals and other claimed embodiments encompassed by the claimed invention. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the claimed invention commensurate in scope with these claims.

While determining whether a specification is enabling, one considers whether the claimed invention provides sufficient guidance to make and use the claimed invention, if not, whether an artisan would have required undue experimentation to make and use the claimed invention and whether working examples have been provided. When determining whether a specification meets the enablement requirements, some of the factors that need to be analyzed are: the breadth of the claims, the nature of the invention, the state of the prior art, the level of one of ordinary skill, the level of predictability in the art, the amount of direction provided by the inventor, the existence of working examples, and whether the quantity of any necessary experimentation to make or use the invention based on the content of the disclosure is "undue" (In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). Furthermore, USPTO does not have laboratory facilities to test if an invention will function as claimed when working examples are not disclosed in the specification, therefore, enablement issues are raised and discussed based on the state of knowledge pertinent to an art at the time of the invention, therefore skepticism raised in the enablement rejections are those raised in the art by artisans of expertise.

Claimed invention encompasses a method of identifying carcinogenic agents by administering the agents to any transgenic mammal the genome of which comprises a DNA repair disturbance caused by inhibition of PARP wherein the agents are administered by any methods and any routes and wherein the inhibition of PARP is effected by any method and wherein the inhibition of PARP is effected in any tissues. It is noted that the transgenic mammals encompassed by the claimed invention would encompass knockout mammals in which endogenous PARP gene has been inactivated or inhibited, and also transgenic mammals in which the gene encoding the dominant negative PARP is expressed. However, the specification as

filed is not enabling for the claimed invention commensurate in scope with the claims because the specification a filed does not provide sufficient guidance as to how an artisan of skill would have made the transgenic mammals encompassed by the claimed invention and as to how the transgenic mammals would have been used in the claimed method and an artisan of skill would have required undue experimentation at the time of the invention to make and use the claimed transgenic mammals since the method of making transgenic mammals was unpredictable at the time of the invention and the method was not routinely practiced in the art.

The specification on page 3 discloses that expression of a PARP mutant that consists of the DNA binding domain PARP in a cell results in the inhibition of PARP enzyme activity which in turn results in the inhibition of DNA repair in the cell. Such a cell divides normally and functions normally when no carcinogenic agent is contacted with the cells, however when the cell is treated with a carcinogenic agent, PARP inhibition results in an increased sensitivity to carcinogenic agents and this may result in cancer development (see the first partial paragraph on page 3). The specification discloses a transgenic mouse in whose genome a DNA construct comprising a skin cell specific promoter of cytokeratin-14 driving the expression of the DNA binding domain of human PARP (dominant negative mutant) is integrated and when the DNA construct is expressed in the basal cell layer of skin, the endogenous PARP activity of the skin cells is inhibited and when the transgenic mouse is tropically administered a potential carcinogenic agent, due to lack of PARP activity and lack of DNA repair, tumor is developed on the skin of the animal (see last paragraph on page 4). The specification discloses a diagram of the construct and also different sequence elements to make the DNA construct and references describing the sequence elements (see page 5). The specification provides working example of making a transgenic mouse (see last 2 paragraphs of page 5 and example 1).

First the issue is: is the specification enabling for making any transgenic mammal? As the current state of the transgenic mammals research stands, there are several significant limitations to the application of same methodology of making

transgenic mammals to different species. Longer gestation times, reduced litter sizes, number of fertilized eggs required for micro injection and relatively low efficiency of gene integration and method of introduction of transgenes are a few examples of such limitations. Investigators observed 5-70 fold lower yields of a recombinant protein in transgenic mice when they used a construct designed for expression in sheep (see lines 1-12 in 4th para of col 1 on page 632 in Mullins et al. (Mullins JJ et al. Hypertension 22:630-633,1993)). The variation in expression levels between different cell lines and species may be attributed to host genetic background, the site of chromosomal insertion and absence of specific transcription factors.

In a more recent assessment of the transgenic technology at the time of the invention, Cameron (Cameron ER. Molecular Biotechnology 7:253-265, 1997) noted, " Well regulated transgene expression is the key to successful transgenic work, but all too often experiments are blighted by poor levels or the complete absence of expression, as well as less common problems, such as leaky expression in non-targeted tissues. A feature common to many transgenic experiments is the unpredictable transgenic lines produced with the same construct frequently displaying different levels of expression. Further, expression levels do not correlate with the number of transgene copies integrated. Such copy- number-independent expression patterns emphasize the influence of surrounding chromatin on the transgene" (see page 256, section 4 on transgene regulation and expression).

For example, Hammer et al (Cell 63:1099-1112.1990) created both transgenic mice and rats expressing human HLA-b27 gene and beta-2 microglobulin. Although, both the transgenic animals bearing HLA-27 gene expressed the gene, transgenic mice did not show any HLA-2 associated disease whereas the transgenic rats demonstrated most of the HLA-B27 related diseases (see lines 20-28 in col 2 of page 1099). This shows that the integration of a transgene into alternative species may result in widely different phenotypic responses even in animals of the same species. Additionally, promoters and enhancer elements may not function in all the species because they may require specific cellular factors. The specification does not provide any guidance as to

whether a given promoter used for expressing an exogenous gene in one animal would have been functional in other animals and even if the promoter may have been active, whether the level of the transgenic product produced would have been sufficient to produce a certain phenotype. If not, what steps would have been taken to address this issue?

Introduction of foreign DNA into fertilized oocyte, for example by micro injection, may result in random integration of the exogenous DNA into host chromosomal DNA which in turn may have major consequences on the expression of the transgene, therefore the production of transgene in all the non-human mammals species will be highly variable and unpredictable. Even if the transgenic animals are produced, it is highly unpredictable whether transgenic animals from species other than mouse (in the present case) will express the transgene to a level high enough so as to enable the development of the claimed phenotype in the transgenic animals.

In view of the discussion above, an artisan would not have been able to make any transgenic mammal, other than the transgenic mouse and the specification does not provide any guidance as to how to modify the vector disclosed in figure for use in making other transgenic mammals for reasons discussed above. Additionally, important issue regarding the transgenic mouse is: what would be the phenotype of even a transgenic mouse whose every cell expresses the dominant negative PARP and whether such a transgenic mouse would be viable due to the high rate of mutation caused by environmental carcinogenic agents. It would be unpredictable as to whether any transgenic mammal expressing the dominant negative PARP would be viable. Furthermore, when a transgenic mammal or mouse expressing dominant PARP in every cell was administered a carcinogenic agent by systemic route or any other route, the transgenic mammal or mouse may not even survive due to the lack of DNA repair, rate of mutation in cells due to carcinogen treatment and tumor development and therefore, an artisan would not be able to use the claimed transgenic mammal for the recited utility. The specification does not provide any guidance as to how an

artisan of skill would have made and used transgenic mammal encompassed by the claimed invention.

It is further noted that the claimed invention as recited would also read on a transgenic mammal including a transgenic mouse in which the endogenous PARP gene of the mouse would have been inactivated by inserting a sequence. The steps of producing a knockout mouse that include, isolating the gene from a mouse genomic library, destroying the gene by inserting therein a selectable marker gene, introducing vectors incorporated with the destroyed gene into cultured ES cells thereby allowing homologous recombination to occur, isolating and identifying a clone in which homologous recombination has been effected, injecting the clone into a blastocyst that develops into the desired mouse. However, the specification does not provide any guidance as to how such a targeted disruption in the method would be carried out or how these method steps would have been carried out. What vector would be used, what part of the PARP gene would be targeted, and finally what would be the phenotype of such a transgenic mammal or a transgenic mouse and as discussed above it would have been unpredictable whether such a transgenic mouse or a transgenic mammal would have been viable. It is noted that the specification does not contemplate as to how the PARP activity would have been inhibited in the transgenic mammal except for where a dominant negative mutant PARP is expressed in the mammal. An artisan would not have known in which PARP gene was inhibited in all the cells would have survived due to the high rate of mutation due to the lack of DNA repair.

Accordingly, an artisan of skill would have required extensive experimentation to make a transgenic mouse by any method other than by integrating a DNA construct expressing a dominant negative PARP in the genome of the transgenic mouse and use it in the claimed method of identifying carcinogenic agents and such experimentation would have been considered because the art of making transgenic mammals is unpredictable and also because phenotype of a transgenic mouse or a transgenic mammal in which PARP gene is inhibited by any method can not be predicted as discussed above and making and using a transgenic mammal in which PARP gene was inhibited was not routine in the art at

the time of the invention. In other words, an artisan of skill would have required undue experimentation to make and use the claimed invention commensurate in scope with the claims.

Therefore, limiting the scope of the claimed invention to (i) a transgenic mouse, wherein a DNA construct comprising the human cytokeratin-14 promoter operably linked to the coding sequence of the DNA binding domain of human poly (ADP ribose) polymerase (EC.2.4.2.30) and polyadenylation signal of the human cytokeratin-14 gene is integrated into the genome of the transgenic mouse and wherein said DNA construct is the DNA construct of figure 1 and wherein said DNA construct expresses a dominant negative poly(ADP ribose) polymerase in the cells of the basal layer of the skin of the transgenic mouse and wherein in said cells of the basal layer of the skin, the poly(ADP ribose) polymerase is inhibited by the dominant negative poly(ADP ribose) polymerase expressed by the DNA construct and (ii) a method of identifying carcinogenic agents, comprising topically administering one or more potential carcinogenic agents to the transgenic mouse, wherein, when said topical administering of said one or more potential carcinogenic agents to said transgenic mouse, compared to the transgenic mouse not administered the one or more potential carcinogenic agents, results in the development of skin tumors, said one or more potential carcinogenic agent is considered a carcinogenic agent, is proper.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 3-6 and 10-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3-6 are indefinite because they are dependent either on non-elected claim (claim 3 dependent on claim 2) or on cancelled claims (claims 4-6 dependent on claims 10 to 3, 10 to 4 or 10 to 5). It is noted that whether terms "10-3, 10-4 or

10-5" are interpreted as ascending numbers or as descending numbers, both ways they encompass cancelled claims.

Claim 10 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: a positive step of comparing a transgenic mammal administered one or more potentially carcinogenic agents with a transgenic mammal that was not administered the one or more potentially carcinogenic agents and wherein development of tumor in the transgenic mammal administered the one or more potentially carcinogenic agents indicates that a potential carcinogenic agent is a carcinogenic agent. It is noted that mere administration of the potential carcinogenic agents would not result in the identification of a carcinogenic agent.

Claim 10 recites the limitation "the poly (ADP ribose) polymerase" in line 3. There is insufficient antecedent basis for this limitation in the claim because the term "a poly (ADP ribose) polymerase" is not recited in the claim before.

Claim 11 recites the limitation "the poly (ADP ribose) polymerase" in line 2. There is insufficient antecedent basis for this limitation in the claim because the term "a poly (ADP ribose) polymerase is not recited in the claim before.

Claim 11 is indefinite and vague because it is unclear as to whether the transgenic mammal is transgenic because of a transgene inserted into the genome of the transgenic mammal that is responsible for the DNA repair disturbance caused by inhibiting the poly (ADP ribose) polymerase or whether the transgenic mammal carries another unrelated transgene in its genome and inhibition of poly (ADP ribose) polymerase is because of another method/reason. Furthermore, it is unclear as to how a genome can comprise a DNA repair disturbance. It is further noted regarding claim 13, that it is unclear whether the expression of dominant negative poly (ADP ribose) polymerase is as a result of integration of a transgene or due to transient expression. If it is because of transient expression, then what is the mammal transgenic for?

Claim 14 is vague and confusing because it is unclear as to how the inhibition of the poly (ADP ribose) polymerase could be made by a transgenic operation when the mammal is already transgenic.

Claim 10 is vague and indefinite because it does not use terms consistently. For example, in line 1 the term "cancerogenic agents" is used however in line 2 the term "one or more carcenogenic agents" is used. Furthermore, in claim 5 (dependent on claim 10) the term " one or more cancerogenic agents" is used. It is noted that conventionally used term is "carcinogenic agents".

Claim 16 is vague and indefinite because it recites "transgenic mammals" in line 5 and it is unclear as to whether there are more than one transgenic mammal that all the transgenic mammals are same.

11. No claim is allowed.

12. A transgenic mouse, wherein a DNA construct comprising the human cytokeratin-14 promoter operably linked to the coding sequence of the DNA binding domain of human poly (ADP ribose) polymerase (EC.2.4.2.30) and polyadenylation signal of the human cytokeratin-14 gene is integrated into the genome of the transgenic mouse and wherein said DNA construct is the DNA construct of figure 1 and wherein said DNA construct expresses a dominant negative poly (ADP ribose) polymerase in the cells of the basal layer of the skin of the transgenic mouse and wherein in said cells of the basal layer of the skin, the poly(ADP ribose) polymerase is inhibited by the dominant negative poly(ADP ribose) polymerase expressed by the DNA construct and (ii) a method of identifying carcinogenic agents, comprising topically administering one or more potential carcinogenic agents to the transgenic mouse, wherein, when said topical administering of said one or more potential carcinogenic agents to said transgenic mouse, compared to the transgenic mouse not administered the one or more potential carcinogenic agents, results in the development of skin tumors, said one or more potential carcinogenic agent is considered a carcinogenic agent are free of the prior art of the record.

Applicants are advised to submit a clean version of each amended claim (without underlining and bracketing) according to § 1.121(c) and a copy of all the pending/under consideration claims. For instructions, Applicants are referred to http://www.uspto.gov/web/offices/dcom/olia/aipa/index.htm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram R. Shukla whose telephone number is (703) 305-1677. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karen Hauda, can be reached on (703) 305-6608. The fax phone number for this Group is (703) 308-4242. Any inquiry of a general nature, formal matters or relating to the status of this application or proceeding should be directed to the Kay Pinkney whose telephone number is (703) 305-3553.

Ram R. Shukla, Ph.D.

RAM R. SHUKLA, PH.D
PATENT EXAMINER